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ABSTRACT

These proceedings of the Second Annual Three-Site National Conference on Instructional Assessment provide the agenda, an outline of a self-directed tour of the Meramec Learning Laboratories, "Individualized Instruction in Community Colleges, a Status Report" by Walter E. Hunter, and the keynote presentation, "Why Reinvent the Wheel?" by George H. Voegel. Reports from the conference group sessions concern: Business; English and Humanities; Instructional Administration; Mathematics; Library--Instructional Resources; Science and Technology; and Social Science. Abstracts are provided of the papers and descriptions that were circulated during the conference. An evaluation of the conference by slightly more than 50% of the attendees is summarized. The status of individualized instruction is presented as to advantages of individualized instruction and the format of the instruction (audio-tutorial, programmed, laboratory, and self-directed learning). It is stated that most, if not all, community colleges now employ some individualized instruction. Research is needed to determine the kinds of individualized instruction programs that are helpful in solving teaching-learning problems in community colleges. (DB)

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CONFERENCE PROCEEDINGS

SECOND ANNUAL THREE-SITE NATIONAL INSTRUCTIONAL ASSESSMENT CONFERENCE ON INDIVIDUALIZED INSTRUCTION: ITS STATUS IN COMMUNITY COLLEGES

* * * *

Sponsored by:

Community College Association
for
Instruction and Technology

November 9-10, 1972

Walter E. Hunter
Mid-West Regional Conference Coordinator
Meramec Community College
Kirkwood (St. Louis), Missouri 63122

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CONFERENCE THEME - INDIVIDUALIZED INSTRUCTION - ITS STATUS IN COMMUNITY COLLEGES

The theme of the Second Annual Instructional Assessment Conference- "Individualized Instruction-Its Status in Community Colleges," highlights an important contemporary issue, that of the individual as the organizing focus of instruction. A latent question that has always been of pressing concern to faculty and administrators in community colleges is how to meet the individual needs of students in an academic setting geared to masses of students.

ABOUT CCAIT

The Community College Association for Instruction and Technology is a national organization of educators interested in discovering and disseminating information concerning the problems and processes of media and technology in the community and junior college teaching-learning environment. One of CCAIT's major goals is to facilitate the exchange of appropriate data, reports, and information pertinent to media and related instructional problems. This is accomplished in many ways including regional conferences, affiliation with the Association for Educational Communications and Technology, AECT Convention special sessions, and the publication of Occasional Papers and Topical Reports.

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AGENDA

FOR

THE MERAMEC COMMUNITY COLLEGE CONFERENCE

THURSDAY, NOV. 9, 1972

9:00 a.m. - 5:00 p.m.	Registration Meramec Community College Library 11333 Big Bend Boulevard Kirkwood, Missouri
10:00 a.m. - 3:00 p.m.	Visit to Meramec College Individualized Learning Laboratories
5:00 p.m. - 6:00 p.m.	Social Hour
6:00 p.m. - 7:00 p.m.	Dinner Viking Restaurant Hy. 66 and Lindbergh Boulevard
7:00 p.m.	Introductions & Keynote Speaker Dr. George Voegel President, Community College Association for Instruction & Technology

FRIDAY, NOV. 10, 1972

8:30 a.m.	Coffee in Meramec College Student Center Room 200
9:00 a.m.	Conference Procedures
9:30 a.m.	Concurrent Group Meetings 9 - 20 group meetings designed to share and exchange experience with individualized instruction
11:45 a.m.	Break for Lunch
1:15 p.m.	Concurrent Group Meetings Assessment of Individualized Instruction
3:00 p.m.	Conference Reports (video taped)
5:00 p.m.	Adjournment

SECOND ANNUAL NATIONAL CONFERENCE ON INSTRUCTIONAL ASSESSMENT
SELF-DIRECTED TOUR OF MERAMEC LEARNING LABORATORIES

Station Number	Person in Charge
1. LIBRARY SELF-LEARNING LABORATORY - LIBRARY, ROOM 214 This laboratory has been established to complement college classroom learning by the use of various self-learning materials and techniques. The lab is supplied with programed materials, audio tapes, film-strips, film loops, audio-visual lessons and packaged courses.	Barbara Chesman
2. LIBRARY AUDIO VISUAL CENTER - LIBRARY, ROOM 116 The Meramec A.V. center is a service component of the college. The center provides audio-visual equipment and materials for college instruction. The center also provides photographic services.	Abdul Samad Larry Kuban
3. LIBRARY TELEVISION STUDIO - LIBRARY, ROOM 104 This is a small TV studio designed for general use by Meramec College teachers.	Warren Smith Frank Darr
4. BIOLOGY AUDIO-TUTORIAL LABORATORY - SCIENCE SOUTH, ROOM 106 This laboratory represents the fourth Audio-Tutorial laboratory designed at Meramec. It features remote control tape players. This program has been in use for more than seven years.	Arnold Greer (Robert Gillespie Friday Only)
5. CHEMISTRY SELF-INSTRUCTION LABORATORY - SCIENCE SOUTH ROOM 205 The second remote control audio laboratory on campus. The chemistry materials used at Meramec are the result of more than six years of research and development.	Rudy Heider Larry Lynn
6. DRAFTING LEARNING LABORATORY - APPLIED SCIENCE, ROOM 202 A relatively small, but very effective learning laboratory. The materials are well designed and heavily utilized.	Al Ostergaard
7. ASSOCIATE DEGREE NURSING LABORATORY - SCIENCE WEST, ROOM 111 A new space featuring self-learning A.V. carrels and simulated clinical practice stations.	Jean Bussard
8. ENGLISH LEARNING CENTER - COMMUNICATIONS NORTH, ROOM 125 This laboratory features many types of self-learning materials and devices. The space is also used as a writing laboratory for small groups of English students.	Willis Loy Kay Rehr

continued...

Station Number	Person in Charge
9. MATHEMATICS LABORATORY - COMMUNICATIONS NORTH, ROOM 101 The math laboratory complex serves more than 800 students in math courses. Very effective team instruction and self-learning is available within this facility.	Frances Mangan Anne Williamson
10. SPEECH-DRAMA - COMMUNICATIONS SOUTH, ROOM 208 COMMUNICATIONS NORTH, ROOM 225 A new facility used primarily to teach effective oral and face to face communications. (This space has not been completed, however, the interested visitor may desire to see the space and talk to the Speech-Drama staff).	Jay Warner Richard Pease
11. LANGUAGE LABORATORY COMPLEX - COMMUNICATIONS SOUTH 208 Featuring two language laboratories...one space for individualized learning and one space for both individualized learning and group discussion.	Anna Marie Lottmann
12. INDIVIDUALIZED HISTORY - SOCIAL SCIENCE-BUSINESS, ROOM 121 This course is now under development by Mr. Jules Biegelsen. Course materials are available for conferees.	Jules Biegelsen
13. TAPED MINI-LECTURES FOR POLITICAL SCIENCE - SOCIAL SCIENCE-BUSINESS, ROOM 116 These materials are available through the Library self-instruction laboratory and the dial retrieval system... Mr. Richard Baker is available to describe their use.	Richard Baker
14. SECRETARIAL SCIENCE LABORATORIES SOCIAL SCIENCE-BUSINESS, ROOM 201 A new audio laboratory has been installed in this area. Both the new laboratory and dial retrieval is currently used in Business Education.	Shirley Breeze
15. ACCOUNTING LABORATORY - SOCIAL SCIENCE-BUSINESS, ROOM 226 This is a self-learning laboratory for accounting students. Programed materials and tutorial instructions are used as part of the Meramec accounting course.	Leon Myers Pat Hunter
16. PSYCHOLOGY-SOCIOLOGY LABORATORY - SOCIAL SCIENCE-BUSINESS, ROOM 108	James Wheeler Thomas Cravens
17. INDIVIDUALIZED ENGLISH COMPOSITION	Evelyn Roberts Maxine Mosley

Individualized Instruction in Community Colleges

A Status Report

Introduction

Individualized instruction in the community college is becoming an "in word" among community college personnel. Faced with a heterogeneous student population, a demand for comprehensive programing and open door admissions community college educators appear to be turning to individualizing the instructional processes. The varied literature appearing in the field reinforces this conclusion. Yet when one walks the halls of most community colleges sampling the instructional methods being used, one concludes that instruction is largely group oriented.

Instructional Assessment Conference

The Second Annual Three-Site National Conference on Instructional Assessment sponsored by the Community College Association for Instruction and Technology focused on the Status of Individualized Instruction in Community Colleges. The three-site conference attracted more than 600 conferees representing more than 160 institutions. Based on the attendance at the three-site conference one might conclude that interest in individualized instruction among community college educators is significant. Most of the 600 conferees attending the instructional assessment conference could be classified as individuals with considerable experience in working with community college students and in arranging instruction which meet the needs of individual students.

Individualized Instruction

For the purpose of this paper individualized instruction may be defined as instruction which provide learning activities which meet the needs of most students enrolled in a specific college course. According to this definition, individualized instruction may utilize a programed format, a tutorial format, a multimedia format or a varied paced format. The detailed conference proceedings will show that conferees reported on audio tutorial courses, programed courses (branched and linear), computer assisted courses, multimedia courses, diagnostic-prescription courses, contract courses, independent study courses, laboratory based courses, systems approaches and so on...a variety of individual ways to arrange instruction to meet individual student learning needs.

Interest in individualizing instruction appears to originate from several sources. The literature of the community college movement is rich in philosophy which supports individualized instruction. Chapman, Cohen, Johnson, Roueche, Herresher, Rita and Stuart Johnson, DeBernardi, Tirrell, Canfield, Blank, Hunter and others have publications which strongly support individualized instruction. The Mastery Learning

concept which has been so logically reintroduced by Benjamin Bloom and John Carroll has certainly motivated action by many community college educators. More recently the book "A Modest Proposal: Students Can Learn" by Pittman and Roueche has pricked the conscience of community college educators.

Educational psychologists have also consistently reminded us that learning is an individual phenomenon. Gagne states that "Learning is in the student's head;" Dewey stressed learning by doing; and Thorndike reminds educators of the laws of readiness and effect. Finally to complete the case for individualized instruction Robert Dubin published his little monograph "The Teaching-Learning Paradox" which clearly validates that method doesn't make any difference...it's up to the individual student. Therefore, if students vary significantly with respect to learning styles, readiness to learn, time for learning, motivation to learn, prior learning experiences and so on, individualized instruction appears to be a most logical choice.

Quite interestingly the costs of individualized instruction appear to favor that method over conventional group instruction. Given the same student-teacher ratio more students using individualized instruction procedures appear to complete the course with higher achievement than students using the traditional group format. Thus, even though the apparent input costs are equal the apparent output costs favor individualized instruction. If highly motivated, well prepared students, populate both the individualized instruction and the group instruction courses the writer would predict no difference between output costs. The apparent superiority of individualized instruction is clearly a function of the heterogenity of the student population.

Advantages of Individualized Instruction

Many community college teachers use the following logic as rationale for arranging instruction for individuals:

1. Learning is essentially an individual phenomenon with respect to the pace of learning, the time for learning and the mode of learning.
   Therefore; the probability of an individual student achieving a set of learning goals is increased if the college course can be arranged so that individuals can proceed at an individual pace, can utilize the amount of time needed for mastery and can select a mode of learning which is compatible with their learning style.
2. Teaching consists of motivating, guiding, prescribing, encouraging and tutoring each individual student.
   Therefore; the teacher's role becomes one of managing the learning process...working with students individually and in groups so that students want to learn, know how to proceed and are rewarded for achievement.
3. Evaluating learning consists of establishing standards of achievement and validating student achievement when these standards are satisfied.

Therefore; teachers develop and use criterion-referenced measurement...judging student achievement against specified criterion and either validating achievement or prescribing new learning activities which will result in criterion performance.

The following statements have been cited as advantages which favor individualized instruction:

1. There can be more meaningful contact between teacher and student.
2. Learning can be initiated at the most appropriate point of entry in the learning sequence.
3. Each student can participate in the decisions relating to mode of learning, time of learning and adequacy of learning.
4. Each learning sequence can be developed so as to use the several media appropriate to efficient learning.
5. There can be a back up system for each learning activity which increases the probability of achievement.
6. There can be a free exchange of ideas among and between students and instructors.
7. Each student develops a sense of responsibility for his own achievement.
8. A combination of learning activities...group and individual... can be used.
9. The cost-effectiveness of the instructional process can be increased through the efficient use of facilities, materials and personnel.

Format of Individualized Instruction

The conferees attending the November 1972 Three-Site Conference reported how they used individualized instruction at their home colleges. These reports might be summarized under four overlapping categories.

1. Audio-Tutorial Instruction

A large number of conferees reported the use of audio tutorial instruction. The majority of these reports were made by college teachers of biology and/or science. Typically, audio tutorial instruction consists of arranging the course so that the teacher's presentations are placed on audio tape. These presentations are usually integrated with learning objectives, reading study sheets, exercises and laboratory activities. Usually the audio tutorial instructional sequence includes a large group assembly session, a self-learning period, a small group assembly session and a testing session. The large group session is used to introduce the unit, to help the student understand the importance of the unit and to communicate ideas which will help the student to learn individually. The small group session is used to provide discussion on the unit objectives and concepts, and the testing session is used to evaluate student progress on the unit.

During the self-learning period students usually listen to the audio taped material stopping from time to time to rewind and listen to difficult parts again. Typically, the audio presentation will tell the student to stop the tape and do something else...read a study sheet, make and record a laboratory observation, complete an exercise, solve a problem or view a short film. Students may, of course, talk with other students or with the teacher about the unit at anytime during

the learning period. Most audio tutorial instructional programs require criteria performance on the part of all students. Thus, if the student fails to achieve at the specified level on the unit test he is recycled through the appropriate learning activities and tested again for criterion performance.

Student achievement, as indicated by course grades is typically higher for audio tutorial students compared to traditional students in the same course. In one report involving more than 1200 students the percentage of audio tutorial instruction students receiving a grade of A, B or C in college biology was 74 percent compared to 60 percent for traditional instruction biology students. For the same two groups, only 9 percent of the audio tutorial students failed biology compared to 15 percent of the traditional students.

2. Programed Instruction

The use of programed instruction in several formats was reported by conferees. These procedures are often combined with other activities so as to provide a broad spectrum of learning opportunities for individual students. Sometimes a programed format is used as remedial instruction or complementary instruction to individualize learning outside of the regular course activity. In other cases the cognitive learning and practice activities utilize a programed format and the affective learning proceeds via group activities. When programed instruction is used for modern foreign language courses the procedure usually includes audio tape, printed material, tutorial interaction, small group learning and taped practice.

Mathematics, English grammar and computer languages are frequently taught by a programed format. These programs may utilize a teaching machine or they may use a printed format. In either case students are able to initiate learning when convenient and to spend the time required to learn and master each learning sequence prior to proceeding to the next unit.

One study, which compared programed Spanish instruction with traditional Spanish instruction reported that the programed instruction students were significantly superior to traditional students with respect to the active parts of language achievement...speaking and writing, and the the programed students were equal to or superior to traditional students with respect to the inactive parts of language achievement...listening and reading.

3. Laboratory Instruction

Laboratory learning is growing in community colleges. Many conferees reported that their colleges utilized English learning labs, math labs, accounting laboratories, psychology and sociology laboratories, speech laboratories, economics learning labs and others in addition to the traditional laboratories in the sciences, languages and technologies. College learning laboratories are often supervised by teaching (or laboratory) assistants who are especially prepared to work with students on a one to one basis. These assistants keep the materials and facilities ready for student use, answer student questions, administer and evaluate achievement tests, refer students to the course instructor, maintain records, etc. One math laboratory, in a large comprehensive community college, is used by more than 800 students enrolled in four college courses. When students in this college enroll

in mathematics they are given a diagnostic test. The diagnostic test is used to place the student in the correct course and in the proper unit within that course. Thus, the student usually receives advanced standing within a course. After placement each student progresses at an individual rate, mastering each unit in the course. Mastery is set at 90 percent achievement of the unit objectives.

English learning laboratories are usually equipped with a variety of learning materials and equipment. Students may receive instruction to improve their skills in writing, reading, listening, spelling, pronounciation or grammar. Some English laboratories are operated on a prescription basis wherein students are sent to the laboratory by a classroom teacher to receive individualized instruction in a specific area. Other English labs are operated as an integral part of a college course wherein each student spends one or more hours per week in the laboratory mastering skills according to need.

Laboratory learning constitutes a significant trend in the community colleges in that such learning tends to add structure to the course without lowering student motivation. Teachers report that laboratory based courses are more cost-effective with respect to the utilization of teachers and other personnel. The added demand for college facilities is somewhat overcome by spreading out the demand for facilities, increasing percentage of utilization, using non-traditional spaces and improved student performance.

4. Self-directed Learning

Self-directed learning programs appear to be increasing in community colleges. These programs are based on the premise that the college facilities...libraries, laboratories, lecture halls, classrooms, media centers and studios can be utilized by motivated individuals as they proceed to achieve self-established learning goals. Self-directed learning programs generally feature flexibility of course entry and exit as well as flexibility of learning mode and pace. Frequently self-directed learning is initiated by the development of a learning contract between a student and a college teacher. This contract specifies the learning objectives, learning activities and how the achievement will be evaluated. Students, after signing the contract, proceed to work out the contract requirements. They may attend some classes, read in the library, complete laboratory investigations, talk with teachers and students, write papers, make presentations, view films, listen to audio tapes, complete programed materials, develop projects, etc...satisfactory completion of the contract results in the award of credit.

Self-directed learning programs may also utilize adjunct faculty...learned persons who are not part of the regular college teaching staff but who are recognized as competent in a specific field. Under the supervision of adjunct faculty the student might use community learning resources such as laboratories, offices, libraries, public buildings, etc. in addition to the college facilities. Again when the terms of the learning contract are fulfilled credit is awarded.

Sometimes students may seek college credit entirely by self preparation to take an examination for college credit in a specific course. Under this mode of operation the student may obtain the course

objectives and other materials. When the student has completed his self preparation for the course he arranges for the examination which, if passes, is interpreted as credit.

Self-directed learning programs are extremely flexible in that they meet the needs of many students not now served by community colleges. Additionally these programs utilize college and community resources very effectively.

Conclusions

The writer believes that the growth of individualized instruction in the community college is significant. Most, if not all, community colleges now employ some individualized instruction. Individualized instruction will not, of course, solve the many problems inherent in operating open-door, comprehensive, humanistic community colleges...but the evidence is quite clear that many hundreds of students will achieve more, at a higher level, because individualized instruction comes closer to meeting their unique needs.

In completing this paper it is important to point out that much research is needed to determine the kinds of individualized instructional programs which are helpful in solving teaching-learning problems in the community colleges. Such research should validate the impact of individualized instruction on students with respect to ability and past educational achievement. It should also focus on the relative cost-effectiveness of individualized instruction compared to group instruction.

Walter E. Hunter
Conference Coordinator

WHY REINVENT THE WHEEL?

Keynote Presentation
CCAIT Conference, St. Louis
November 9, 1972

Introduction

As many of you are aware, higher education is facing a critical period. Some experts are even talking of the '70's as a decade of depression in higher education. Some of these critical problems are identified as follows:

- Not enough money
- Vague, not clearly defined objectives
- Confused and hostile constituencies: including students, faculty, alumni, parents, and community groups
- Anachronistic curricula
- Outmoded and inefficient techniques
- Lack of enough top-quality teachers and administrators
- Disagreement about the top priorities
- Inefficient use of plant and facilities

This presentation takes the analogy of making the so-called wheel to improving education in order to begin to overcome the problems just mentioned. First, one has to examine what the parts that "wheel" might be in education.

First and most prevalent is the traditional mode of instruction. This area of the so-called "self-contained" classroom is probably under more intensive scrutiny for possible change than any other aspect of the educational scene. I am sure most of you recognize the myth that has been perpetuated in this concept because there is no such thing as the self-contained classroom. For example, the logistics in support of this range from the custodial service to the AV media. All kinds of things are being tried, such as pass-fail, registering every two weeks, injecting media, team teaching, etc. because higher education is now more than ever under scrutiny from society itself. In a recent WICHE seminar, it was pointed out that colleges were missing the significance of the quiet revolution in its midst and is not doing nearly enough to change itself. These trends are listed below:

1. "Slow growth or no growth" in college enrollments, "Unprecedented levels" of competition for students will follow.
2. State funds going to higher education has reached a plateau that will hold throughout the decade.
3. New social priorities are combining with inflation to make the chances for major new government aid.

4. Students are being asked to pay or pay back an increasing share of their education. This will lead to a "free-market situation" in postsecondary education in which students will opt for institutions promising "the greatest return."
5. Growing tendency for students to choose proprietary and industrial schools over colleges and universities. Even the community colleges are being bypassed.

The list of ther improvements to instruction include:

a) Combinations of classroom presentations such as large lecture, small group discussion and auto-tutorial sequences.
b) Individualized instruction
c) University Without Walls
d) CLEP and Credit by Exam
e) Other - (you name it)

To show you related trends to these, in a study by Huckfeldt, also, at WICHE, he asked 20 questions about the future in higher education. The results from 385 selected individuals are reported in the November 6th issue of the Chronicle of Higher Education.

The development of such an improved wheel is not without its problems. Staying within the wheel making analogy the attendant "production" problems may be categorized as follows:

1. Wheel makers not in gear.
   Faculty and administration not interested in improving the learning environment for their students. Lack of awareness.
2. No plans.
   Poor organization at all levels within the institution, not geared to getting proper job done.
3. No parts, or a lack of resources.
   Funds are tight, old or temporary facilities, no media equipment or materials, lack of support staff.
4. Making little cogs when wheels are needed.
   Attempts at piece meal approach, little bit here, little bit there, rather than a broad approach at minimum of the course level.
5. Making cardboard wheels when bronze ones are needed.
   This applies where the innovation has no lasting power.
6. Ignore products (wheels) of others.
   Staff hasn't looked around, pretends it doesn't exist, or claims it does fit their course. These are all symptoms - the Not Invented Here Syndrome.
7. Parts are patented/copyrighted.
   A small but growing problem is that some materials are restricted in their use without some cost reimbursements. A few wheel makers feel they should conduct their own version of industrial espionage and just cart off (dub) the other fellow's product.

While this list is not all inclusive and could obviously be recast into a different mix, it does serve to call attention to a few of the problems besetting innovation and change in education.

Let us now turn to a few ways to improve the wheel building process. While the following may not offer any particularly new design solutions, I hope that by highlighting these, it will serve to increase scale of the application and implementation of these.

1. Inventory local resources
   Too often wheel makers are unaware of parts, etc., already available to them at their own colleges. Find out who is using what among your own faculty and staff. What materials could you use from your own LRC's?
2. Develop Plans and Organized Procedures
   Think ahead, keep at wheel, not the cog level. Develop a team relationship with peers, support staff, and appropriate administrators.
3. Apply a "Systems Approach"
   While a system approach may tend to sound impersonnel, and uncreative experience has shown that sound planning, people involvement, review of procedures, evaluation of the tryout all lead to better chances of a successful and useful wheel.
4. Inventory Regional/National Resources
   Perhaps as an aspect of the "systems approach," the availability of materials already developed at other institutions should be investigated. If someone has done it already and it meets the learning criteria you have established, then why not use it? The key is what are the students learning outcomes.
5. Overcome the N.I.H. Syndrome
   Very difficult to do. Organize in-service sessions, have meetings with peer discipline faculty from area colleges, try some interdisciplinary courses.
6. Create an information network
   While this can be listed under #5 above, it is singled out because the development of an informal information flow on campus. Establish an "innovative center" or faculty watering hole with latest information available can be effective.
7. Consortia, Networks, Exchanges
   Use them, join them, you might like them. Expand your information system to other colleges and vice versa.
8. Educational Consumer Reports, or Accountability Customer Style
   Each and every user of a new program, individualize learning packet, or other educational product should evaluate the impact of it within the context of his goals and objectives. This means that the faculty or administrator that developed or purchase such programs has to validate the use of the materials, etc. with learner feedback. Customer reports, if you will! At present, the only way to establish quality control is to begin a customer "call back" system. Get the rejects off the road.

While these observations of reinventing the wheel in education are not earthshaking, it is hoped that at least some of the problems have been identified or put in context for you. It is also hoped that you have found one or two practical ideas in this presentation that you could take into your group sessions tomorrow or back to your college after the conference.

George H. Voegel
Wihliam Rainey Harper College

Status of Individualized Instruction
in the Community Colleges

Reports from the Concurrent Group Sessions

ROUP	ROOM	CHAIRMAN/RECORDER
A. Business Related (Bus. Education, Accounting, Economics, Bus. Organization, Management)	SSB 239	George Wang - Mary Fuller (Alternate: William Beecher)
B. English & Humanities Composition, Language, Music, Art, Literature	CN 201	Thomas Zimanzl - A.M. Lottmann (Alternate: Maxine Mosley)
C. Instructional Administration Presidents, Deans, Division Chairmen	ADM 236	Robert Harrington - Phil Carlock (Alternate: Frank Leet)
D. Mathematics	CN 204	Frances Mangan - John Watkins (Alternate: Ronald Cain)
E. Library - Instructional Resources	LIBRARY 104	Gloria Terwilliger - B. Chesman (Alternate: George Voegel)
F. Science & Technology	SW 202 SW 204	James Arnwine - Floretta Haggard (Alternate: Alma Mueller)
G. Social Science (History, Political Science, Psychology, Sociology, Anthropology)	STUDENT CENTER 203	James Adduci - Jules Biegelsen (Alternate: Joseph Landeau)

GROUP SESSION A

Business Related
(Business Education, Accounting, Economics
Business Organization, Management)

George Wang, Chairman
Mary Fuller, Recorder
William Beecher, Alternate

Charge: (General Session, Walter Hunter--Identify ourselves in terms of where we think we are going; our present status of the college in terms of individualized instruction, and also exchange experiences, ideas and etc. that are presently being conducted at our individual colleges).

Members present--twelve
Introduction of members by school and department:

William Beecher, Waukeshe County Technical Institute, Waukesha, Wisconsin
Jo Ann Billington, State Fair Community College, Sedalia, Missouri
Nell Burnham, Platte College, Columbus, Nebraska
Shirley Evans, State Fair Community College, Sedalia, Missouri
Mary Fuller, Forest Park Community College, St. Louis, Missouri
Bob Graves, Thunder Bay, Ontario, Canada
Allen Roger, Southwestern Community College, Creston, Iowa
Leon Sanders, Platte College, Columbus, Nebraska
Twila Wallace, Platte College, Columbus, Nebraska
George Wang, Meramec Community College, St. Louis, Missouri
John T. Warren, Bell and Howell Schools, Chicago, Illinois
Robert Martin, Missouri State Department Representative

Meeting & Discussion:

A slide presentation was made by Jo Ann Billington and Shirley Evans of State Fair Community College. The presentation included a very specific dialogue as to procedure and instructional guidelines for individualized instruction.

The State Fair College program features:

1. The program is federally funded and total commitment has been made by the Business Education Department to individualize all courses by the end of this year (three-year project).

2. A student with previous skills and knowledge may test out of a particular course; however, credit is not given until the student completes the subsequent course--receiving the same grade for both courses.

3. A student has two semesters in which to complete a course without paying additional fees.

4. Enrollment can be made at any time during the semester.

5. Testing placement of two levels:
   a. Students without previous knowledge in shorthand and typewriting.
   b. Review for students with previous knowledge and highschool training.

6. Once students are placed in a course they are oriented to individualized instruction, and how it differs from the traditional type of instruction.

7. Students obtain lesson plans, needed supplies, instructional materials, and from then on the student can produce and progress at his own pace.

8. Periodic checkpoints are made. The student is not turned loose.

9. Desks are equipped with tape player, carousel, slide projector, and rear view screen.

Waukeshe Technical College presently have two classes on an individualized instructional basis--accounting and office procedures. Their main problem seems to be that of students not coming in to the lab. (Time cards were suggested vs. open lab.)

Southwestern, Thunder Bay, Bell and Howell, Platte, Meramec and Forest Park Colleges reacted to the subject and suggested student assignment of a specific time allotted for lab attendance.

A student may begin the second semester courses in shorthand and typewriting at Meramec and Forest Park if they have had two years of highschool training, making a "C" or better grade.

George Wang of Meramec indicated that Leon Myers and Pat Hunter had developed and are using audio-tutorial instruction in one of their accounting courses.

<u>Questions: Group input</u>

1. Should we go to individualized instruction altogether; or should there be an alternative to the student--individualized or traditional?

2. Should there be testing to determine how the student will learn best?

3. How may students reach the prescribed or set objectives on their own?

4. How do I, (my college) go about setting up a program of individualized instruction, say accounting, with my present setup?

5. How does one handle the problem of orientation on the part of the faculty and students to make a change?

6. This type of program takes money, and we just don't have it--where do we go?

After much healthy discussion and input on the part of the members from all colleges represented, plus a few drop in's, the following conclusive observations were made!

1. There must be total commitment on the part of the instructor, the school, and students to the courses that are being individualized.

2. All schools are doing some type of individualized instruction, although the actual identification "by name" has not been made.

3. The real advantage of individualized instruction approach is that it gives the school an opportunity to serve people almost 365 days of the year because a student may enter the course at any point in the semester.

4. Perhaps there should be a flexible program, or a dual tract, because students have different needs. Some are capable of achieving with one approach where another student may not be able to arrive at a satisfactory level of performance without group input and interaction.

5. Clarification seems to be in order in terms of semantic for "Individualized Instruction," "Audio-Tutorial," "Personalized Learning," "Independent Study," "Self-Directed Study," "Contract Course," "Supervised Packaged Courses," "Shorthand and Typewriting Tape Laboratories," and etc.

6. Release time is necessary for instructors to develop their individualized courses.

7. There should be an instructor and a laboratory assistant available at all periods to assist students working individually.

It was generally agreed upon that an approach or suggested beginning for a successful individualized instruction program would be:

1. Develop a pre-test based on course objectives.

2. Develop clearly defined objectives and goals for the course.

3. Develop adequate teaching materials--hardware and software.

4. Develop a post-test based on course objectives.

5. Evaluate student achievement of course objectives.

Visits were made to the shorthand lab., the accounting lab., library and other CCAIT Centers designated for our visitation.

Copies of a number of individualized courses from other colleges were distributed to those attending the conference.

GROUP SESSION B

English and Humanities
(Composition, Language, Music, Art, Literature)

Thomas Zimanal, Chairman
Anna Marie Lottmann, Recorder

Members present--eighteen

Anna Marie Lottmann, Meramec Community College, St. Louis, Missouri
Paula Brin, Hutchinson Community Junior College, Hutchinson, Kansas
Wanda Allen, Hutchinson Community Junior College, Hutchinson, Kansas
Arless Eilerts, Hutchinson Community Junior College, Hutchinson, Kansas
Sharon Darby, Hutchinson Community Junior College, Hutchinson, Kansas
Diane T. Callin, William Rainey Harper College, Palatine, Illinois
Phil Bede, Platte College, Columbus, Nebraska
Nancy Baum, Olive Harvey College, Chicago, Illinois
Maxine Mosley, Meramec Community College, St. Louis, Missouri
Lee Adams, East Central, Union, Missouri
Evelyn H. Roberts, Meramec Community College, St. Louis, Missouri
Milo Duer, Missouri Baptist College, Hannibal, Missouri
James T. Payne, Crowder College, Neosho, Missouri
Kenneth McNutt, Missouri Baptist College, Hannibal, Missouri
Stephen L. Crady, Illinois Central College, Peoria, Illinois
Ruth E. Goldman, Wayne County Community College, Detroit, Michigan
Madeleine Bennett, YMCA College, Chicago, Illinois
Rosemary Thomas, Forest Park Community College, St. Louis, Missouri

Group Chairman, Thomas Zimanzl, described the individualized systems approach used at Moraine College. Each teacher there is asked how he wants to teach, and the student is then urged to enroll in classes where the teaching style matches his learning style. He indicated that any innovation to be approved must have six elements:

1. rationale
2. measurable behavioral objectives
3. pre-tests
4. instructional strategies
5. post-tests
6. feedback through student evaluations

In a completely individualized situation where the student has full choice of whether to attend instructional sessions or not, there is an attrition rate of 70-80%. Mr. Zimanzl indicated that in a course like English Composition the student must be required to attend class for 4-6 weeks before he is permitted to work on his own.

Mr. Zimanzl pointed out some areas of administrative concern in individualized instruction:

1. The number of students that any one instructor can satisfactorily teach by individualized methods is definitely limited.
2. The unit cost.
3. Methods of instruction must be valid.
4. Open entry, if allowed in one discipline must be allowed in all.
5. Amount of time a student may have to complete the course.
6. Work load of instructors.

In a small group session on administrative concerns, Mr. Zimanzl said that at his college the normal work load in non-laboratory courses is computed on the basis of 120 students = 16 credit hours. Any enrollment over that is compensated on the basis of 10 students = 1 credit hour. Thus, an instructor with 150 students is paid a bonus of three credit hours.

It was pointed out that instructors who have organized their classes with individualized instruction have more free time than in traditional class work, since they do not need to prepare for classes every day and since most papers are marked in class in presence of the students.

STATUS OF INDIVIDUALIZED INSTRUCTION
IN THE COMMUNITY COLLEGE

Concurrent Group Sessions

Report from Group C
Instructional Administration
(Presidents, Deans, Division Chairman)

Chairman: Robert Harrington
Recorder: Phil Carlock

(List of attendance attached)

The concurrent session regarding Instructional Administration started at 9:45 a.m. on November 10, 1972. This group included presidents, deans, division and department chairmen, and interested participants in the area of Instructional Administration. We began our session with an introduction of the participants (approximately 25 people) and asked each participant to give a short verbal description of the programs of individual instruction at their institution. From this introduction, we arrived at six common areas that could be identified as problems or of high interest to the group. They are as follows:

-the implementation model regarding the technique, support, authority, and in-service in the areas of individualized instruction.

-what type of hard data is now in existence as to information and approaches used in individualized instruction?

-the evaluation on the basis of student cost analysis, faculty, administration, and instructional output was of primary concern.

-individual instruction and the involvement of the non-campus approach, community service, part-time instruction, correspondence, extension of the campus were also discussed in respect to traditional and non-traditional forms of instruction.

-another topic of interest was should we become involved with individualized instruction from the point of view of the student and of the taxpayer?

-several questions were raised regarding the source of funding for proposals and projects at the local, state, and federal levels.

Rationale for Individualized Instruction

Our discussion on the rationale for individualized instruction was started by Jack Trindle of Platte College, who indicated that they felt they could serve a greater number of students, could offer short courses, and a great amount of time could be saved for both the instructor and the student by individual instruction. To further reinforce this statement, Jeremy Kindred from Iowa reported on Kirkwood Community College, one of the colleges in the Iowa system, and how they had saved a great deal of money per pupil cost in a welding course by offering the course on an individual instruction basis. He also was very enthusiastic with Kirkwood's approach of allowing a student to register and start course work within one week after initial contact. Many of the participants indicated that if a student contacted them in mid-October, at their community college, they would have to wait until the start of the second semester to begin classes. A potential criticism was pointed out by Aaron Piper, Detroit, Michigan, when he indicated that individual instruction is a success only because it is a "novelty." The student, he feels, must be a self-actualized, self-motivated, self-starter, etc.; otherwise, the equipment will be unused. He feels that identification of a student that can best use individualized instruction must be set before a student goes into a program. If this is done, you can plan on "success." Some discussion was then directed on how best to identify this student before he becomes involved in the program.

Jim Catania and Bob Harrington both commented that they had no choice but to offer individualized instruction at their community college. Because of a decision either by the Board or by top administration, the physical facilities were built without large group space and principally designed for individual instruction. They both were hired on a basis of complete commitment and firm conviction to individual instruction.

From the area of physical facilities, our discussions were directed to faculty and workload when Laura Bauglin raised the question of increased time and pressure put both on the faculty member and the student when utilizing the individualized instruction approach. Harrington suggested that faculty reaction at his community college is great, and that they follow this format of instruction on the individual basis:

-first of all, they set the objective,

-then they read, look, and listen (different corridors are available),

-then the student is tested,

-then recycled,

-and, after experience development, the student is evaluated on his progress.

Several participants stated that individualized instruction starts at an early educational level and both faculty and student are prepared to today's education to follow this format of instruction. Therefore, the time and pressure are not as great.

From this general discussion, our group next discussed evaluation.

Evaluation

Aaron Piper suggested that retention of students in the classroom at the community college level is the best evaluation process. Gene Byrd raised the question, "How do you know it works as far as meeting your behavioral changes and objectives if we only count heads in the classroom?" There was general agreement in our group that this really depends upon the faculty member as far as evaluation. Next, our group centered on how to motivate the instructor to become involved with individualized instruction. There was some general agreement that in order for individualized instruction to be effective and meet its potential you must select the instructor with that in mind. Therefore, you know what outcomes you can expect and by exposure, observation, as well as visitation to institutions currently realizing success in individualized instruction, your program will grow.

Frank Christensen, from William Rainey Harper Community College in Palatine, suggested that there are several problems regarding individualized instruction that administration sets as road blocks. He suggested that the reporting of grades is a problem, and that rewards to the faculty are very small; specifically, if a student does not meet the objectives in one semester, will the instructor have to carry over those students into the next semester as well as his regular load in order to ensure that each student is receiving the instruction necessary to complete the course?

Jim Seany from Iowa suggested that students lose the "peer" group imput when they are placed in an individualized instruction system. The response was that it depends upon the process to ensure that small group sessions and/or a combination of instruction is offered. Three of the most important essentials of individualized instruction would be the recognition of the learning style of the student, self-paced programs, and ensurance that materials are available.

In the area of evaluation, Dr. Henry Boss of Southern Illinois University said that relationships and imput should be based on a faculty-to-faculty, faculty-to-student, student-to-faculty, and student-to-student interchange. By so doing, the objectives and the media utilized can ensure the opportunity for correct goal-setting and student/faculty involvement.

At this point discussion followed that the only real measure of evaluation is if the competencies presented in the classroom instruction allows for successful job production when the student graduates. Most felt that the follow-up with students who had graduated as well as advisory committees would assure that skills necessary for the job production are met.

At this time, prior to our lunch break, Bob Harrington provided the group with an 8-mm film on the secretarial; hotel, motel, restaurant management; personal development; data processing; etc., programs at his institution involving individualized instruction.

Break for lunch.

Hard Data Available

It was felt that very few community colleges have been involved in the area of research and/or development of hard data. Other than those provided at this conference in the materials room and some research done at the University of Iowa, there is very little hard data available. Most of the materials found have been a "show and tell" rather than a compilation of all the imputs and expected results of individualized instruction at the ocmmunity college level. (It is hoped that after the Three-Site Conference by CCAIT, these papers might provide that hard data information needed.)

Implementation

In the interest of time, we did not spend a great deal of effort on the next two topics--that of implementation and source of funding. As is true of all conferences that are worthwhile, this one was also too short and, therefore, will perhaps offer too little. In the area of implementation, Henry Childs discussed in-service training for faculty as well as for students, and it was felt by the group that when faculty participate in in-service, they should be given monies and/or graduate credit for their efforts. Speakers should address the total faculty and present ideas and comments such as how to set up extended and released time projects and proposals, reduced loads, and opportunities for research in the development of individualized instruction programs.

In trying to identify who really was in charge of individualized instruction at the various community colleges represented, it was decided that individualized instruction must be a team effort, but often it is a mandate from the president or the board. Initial push for the beginning of individualized instruction, it was felt, was usually by the administration at the president or dean level. After initial involvement, it was felt that faculty take upon themselves to offer the momentum and continued efforts in specific curriculum areas of individualized instruction.

Source of Funding

The last area of interest was the source of funding. Examples were given by participants of grants, projects, foundations, at the various local, state, and federal levels of funding. Some specific titles were mentioned, such as NDEA, Title III and VI, as well as some foundations' interest in individualized instruction. It was agreed that at most of these levels a percentage of the local budget must be allotted on a shared basis.

A suggestion that a total part of every instructional budget should be allotted for "improvement of instruction" to ensure innovation and interest in new approaches to instruction. All levels must have the commitment to individualized instruction; otherwise, the program runs the risk of running out of funding or of dying because of lack of interest after the initial proposal or project.

Phil D. C[illegible]lock
Recorder

PARTICIPANTS IN INSTRUCTIONAL ADMINISTRATION
CONCURRENT GROUP SESSION

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John T. Warren
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Rosetta Wheadon, Dean
State Community College
E. St. Louis, Illinois

GROUP SESSION D

Mathematics

Francis Mangan, Chairman
John Watkins, Recorder

CCAIT Conference
11-10-72

The group consisted of representatives from Iowa, Wisconsin, Michigan, Nebraska, and Missouri. Some members made presentations while others attended to gain information about the various projects.

Tom McCollough, Crowder College, Neosho, Missouri

Basic Algebra - Programmed Materials

Students have a schedule for minimum pace. Lectures are given at this pace. Students are not required to attend the lectures unless they wish. There is a test at the end of each unit. If a student does not finish by the end of the semester, he has a choice as to whether he wants a W grade or in INC. grade.

Ray Plankington, Platte College, Columbus, Nebraska

A program was needed for off campus communities, for students that distance prohibits class attendance and for night students who attend only once each week. Fifty percent of the students in Arts and Sciences are such night students. He is in the process of developing courses in Intermediate Algebra, College Algebra, and Trigonometry.

Ron Beeler, East Central Junior College, Union, Missouri

Beginning Algebra
Non-transfer course, doesn't satisfy any degree requirement.

Ron uses his own material he has developed. All units from chapter 3 on through 20 has the lecture on video tape placed in the learning lab, where advanced math students on work-study program, assist the student who needs help on lesson material as well as with test problems missed. Students selected for this class scored below 14 on the Missouri Math Placement test. Student can go at own pace, taking test when he is ready. He must pass the required post-test over a unit. He can take the post-test until he does pass the unit. Test scores are averaged to determine the grade over the unit. Grades are A, B, C, D and I. If a student receives an I grade, he has one year to complete the material and remove the I. Students are not required to attend class. He may spend this time in the learning lab or over coffee.

Drop-out rate before this program was about 30-40%.
Drop-out rate with this program is about 5-10%.
Disadvantage of the program is to the teacher, he misses having the better student, and giving class lectures.

Fred Toxopeus, Kalamazoo Valley Community College, Kalamazoo, Michigan

Individual study is used for some students but not for all students. He starts with a large group of 60 students in each section -- beginning and intermediate algebra. Each class is scheduled for 5 days a week.

Monday, Tuesday, and half of the Wednesday period is lecture and discussion. There are homework assignments. The last half of the Wednesday period is for testing. If a student scores 80 percent, he is finished for the week. He need not attend the Thursday and Friday sessions. On Thursday and the first half of the Friday period, the teacher works with those students who failed the Wednesday test. Thursday is blackboard work. A second test is given on Friday. Most students pass the second test. If a student does not pass the second test two weeks in a row, he is transferred to the learning lab where he remains for the rest of the semester to work at his own pace. Students like this system and grade point average is considerably higher. They have a math tutoring service manned by math instructors and good math students.

Nicolet College and Technical Institute, Rhinelander, Wisconsin
Altha Robison, Instructor

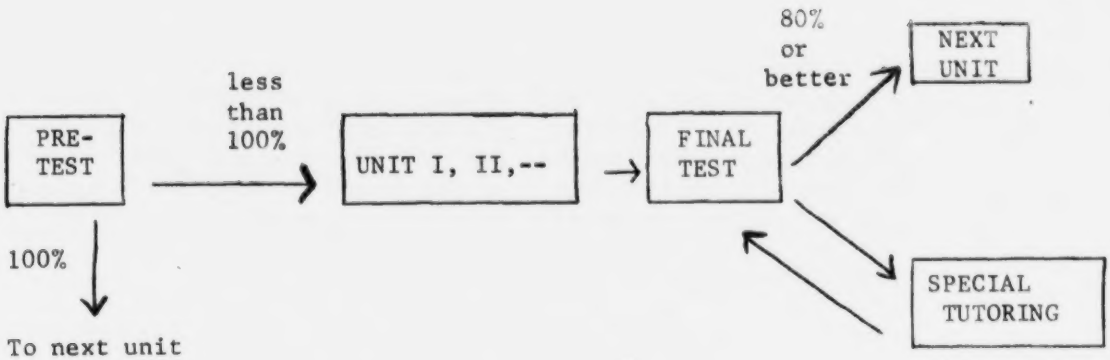
Nicolet has a Comprehensive Independent Learning Center which offers an alternate way to take courses and to give help in specific areas. Students come for many reasons.

1. Conflict in scheduling.
2. Able students who want to complete courses in less time than the regularly scheduled classes.
3. Students who need a longer time to complete courses.
4. Students who for one reason or another cannot function in a group situation.
5. Students who need tutoring and individually prescribed materials.

Several of the instructors who use the Center have written their own courses, made their own tapes, etc. Commercial self-instructional materials are also used. The Center is located on the third floor of the Learning Resources Building.

Bill Landers, East Central Community College, Washington, Missouri

Intermediate Algebra (70 students - 3 sections - no lecture)
Text - Reiss and Sparks 4th Edition.



Grade -- Final is the first score that counts.

Grades on final tests are averaged. Student record charts are kept.
Syllabus -- gives directions, assignments over text, worksheet, T.V. Tape on unit.
Tests are over each chapter, sometimes many topics.
In some cases students may be referred back to units in Basic Math.
Drawbacks have been correlation between tapes and text. Also, some chapters may be over too much material.

Feedbacks -- Students like the approach. About half of the students in the course have been in Basic Math and are familiar with the approach.

Comments -- Students tend to group in ability and speed. The instructor must spend a great deal of time in motivating students, and in some cases helping them develop confidence.

Dorothy Heidbrink, Meramec Community College of St. Louis, Missouri

This course is for non-math, non-science majors. Students of all abilities enroll but usually very poor math background. Very little lecture is used. Programmed material is used and developed by the department. Each unit consists of a pre-test, objectives and body material. This is a transfer course. The student can finish the course at his own pace. He may take two semesters to finish if necessary.

We have recognized from our teaching experience, that students enrolled in the Modern Math program come from a varying degree of mathematical proficiency and a wide variety of career interests. Hopefully, we have developed a set of programmed units that will enable the individual student to progress at his own rate in a selection of topics more relevant to his own special interest area.

The twelve programmed units that have been completed include the Story of Creation (development of numerals and numeral systems), Bases and their Applications, Fundamental Concepts in Arithmetic and Algebra, Properties of Curves and Lines, Triangles and Trigonometry, Making Money using Logarithms, and the Problems of Life. All of these represent a part of a total package designed to serve more fully the diverse needs and interests of the individual student.

Each unit consists of an introduction, a pre-test, a statement of the students' objectives, and the "body" which "teaches" the objectives. Explanations, examples, illustrating procedures and principles, and practice problems with solutions are included in the body. In the author's designs for complete success of the course is a need for classroom space for both testing and problem solving; in addition instructional aids would fulfill the need for test administration.

Structured to help the individual student, student-oriented goals of Individualized Modern Mathematics include:

1) Achievement of a practical knowledge of Mathematics needed for solving the many problems that occur in everyday life-type situations.

2) An appreciation for the "logic" of Mathematics. Allowing the student to progress at his own rate according to his own interests, it is the author's intent to arouse or stimulate student interests in the enlarging spectrum of Mathematics.

John H. Watkins, Mineral Area College

Mr. Watkins has developed his own material for a text in Basic Mathematics. This course material is put on sound-on-slide and placed in the IRC building. The student may use the sound-on-slides to help him understand the material involved in that unit. He may review the slides to prepare for a pre-test or for a post-test. The unit is covered completely in the sound-on-slides.

Students are chosen for the class who have made a score of 10 or below on the Missouri Math Placement test. The class meets for 5 days a week for 15 weeks. A pre-test is given over each unit. Any student who passes the pre-test is excused from class the rest of the week and he receives the highest points possible on the post-test without taking the test. He can spend this time getting prepared for the next pre-test.

Students who fail the pre-test must meet class the rest of the week. The material in the unit is dicussed in class and as much board work as possible is used. At the end of the week a post-test is given. The grades are arrived at in the usual way.

Advantages, is the student may use the material at his leisure time. He may use it to learn new material, review for test, etc. The expenses are relatively inexpensive. The student may repeat the sound over and over on each slide; he may let the slide stay on the screen and study the slide as long as he wishes. Disadvantages, motion is not involved.

Jack Porter
Michael Atkins, Cuyahoga Community College, Cleveland, Ohio

The Mathematic Innovation project at Cuyahoga Community College was begun in an effort to devise a model for learning that is better than the traditional lecture method. In traditional instruction the hypotheses are that all students learn at the same rate, from the same material in the same ways. Based on these assumptions the following educational model results.

RESULTING EDUCATIONAL MODEL

1. Lecture Discussion is the method students learn by
2. All students understand each lecture
3. One student's understanding a question and answer implies ALL students understand
4. All students are ready for a test simultaneously
5. A student continues on in spite of a poor test grade
6. Normal Distribution
7. One term is the amount of time needed for a course
8. Failing a course means you repeat the whole course

They sought an alternate model that would be random in time and include multiple approaches. To this end modules were designed. The features of the new model include:

1. Anyone can master the material
2. Courses defined by skill levels
3. Random in time
4. Different approaches for different people
5. Non-punitive grading
6. Overall sequential

This is their second year on this project. They estimate five years for completion.

Frances Mangan, Meramec Community College, St. Louis, Missouri

Over 800 students are handled each semester in our math laboratory in four separate courses.

The classes handled in the math lab differ from traditional math classes in that there are no lecture periods. There are 22 sections. Each section contains not more than 40 students. The guidelines we use in balancing class sizes are flexible, but our general distribution requires no more than 25 students in basic math with the other 15 divided among the other courses. Our physical set-up is 2 sets of 2 adjoining rooms. The Basic Math is handled in one set, a testing room and a study room. The other courses are together in the other set of rooms.

The student comes to the lab regularly, three hours per week, and works individually at his own pace.

Individual help is provided. The student is encouraged to study in the lab where help is available whenever he runs into difficulty. All work is checked immediately in the student's presence. His errors are explained to him. If a student chooses to spend more than three hours per week, he may do so.

The lab is kept open approximately 69 hours per week. At the present time our staff includes 2 full-time teachers, 4 part-time teachers, 4 instructional assistants, and 15 student helpers. We are handling about 800 students this semester. We plan to enlarge our staff to meet the increasing demands of more and more students. Administration-wise this approach is most economical. Many students can be handled with less expenditure for instruction. This system involves much more work in the part of the teacher, but it is rewarding. Traditional methods have failed with many of these students. A new appraoch seems to be indicated.

There is much record keeping and filing involved in addition to the many papers to grade. We keep a card record of each student. He has a record sheet of his to keep his own record of progress. We have a folder for each student in which all his work is filed. In addition to the students who are taking the developmental math courses we are happy to help any student who may be having difficulty in some course due to a math deficiency.

Order of Procedure

A student is placed in a working area on the basis of the placement test. There are pre-post tests for each unit. He must make 90% to by-pass a unit. He cannot proceed to the next unit until he makes at least 80%. He is not penalized gradewise if he takes several tests. He does as much practice work in an area as his needs indicate. Students in any of the courses follow this same pattern. The materials used in the lab have been written by the teachers of the course especially for the developmental students. The materials are available through Wadsworth Publishing Co., Belmont, California.

GROUP SESSION E

INSTRUCTIONAL RESOURCES GROUP PROCEEDINGS

CCAIT 2nd Annual National Conference
11/10/72

Gloria Terwilliger, Chairman
Barbara Chesman, Recorder

Conferees:

Ken Allen, Waubonsee Community College, Sugar Grove, Illinois
Seth Bills, Ricks College, Rexburg, Idaho
Joleen Bock, College of the Canyons, Valencia, California
Boyd Bolvin, Bellevue Community College, Bellevue, Washington
Derek Dalton, Sheridan College, Oakville, Ontario
Stephen E. Douglass, State Tech. Inst. at Memphis, Memphis, Tennessee
David Francisco, Forest Park Community College, St. Louis, Missouri
Robert C. Graves, Confederation College, Thunder Bay, Ontario
Donald E. Green, Clinton Community College, Clinton, Iowa
Virginia Hagebush, Meramec Community College, Kirkwood, Missouri
John A. Hilton, Mineral Area College, Flat River, Missouri
Eileen Iberg, Nicolet College, Rhinelander, Wisonsin
Jamil Qureshi, State Community College, East St. Louis, Illinois
Jacalyn Robinson, Carl Sandburg College, Galesburg, Illinois
Alfred Sagar, Kalamazoo Valley College, Kalamazoo, Michigan
George Voegel, Harper College, Palatine, Illinois
John Vonnes, Central Nebraska Tech. College, Hastings, Nebraska
Margaret Wainer, Carl Sandburg College, Galesburg, Illinois
Helen Wallace, Southwestern Community College, Creston, Iowa
John T. Warren, Bell & Howell Schools, Chicago, Illinois
Marion Wirth, Connors State College, Warner, Oklahoma

The Instructional Resources Group began with a lively discussion centered around the relationship of the Learning Resource Center to the general organization of the school, and especially to the faculty and administration. As participants voiced their particular situations, it became evident that perhaps the operation and function of the LRC becomes a logistics problem peculiar to each institution it serves.

The following outline, by implication, reflects the topics touched on by one or more individuals. Some persons expressed the need for guidance and direction in determining a viable role in their educational institutions.

I. Many Hats in Search of a Head. (Considerations for the Learning Center in Individualized Instruction.)

A. Where is individualized learning really centered?
1. Relation of LRC to individualized study programs
2. Relation of LRC to academic departments
3. Relation of LRC to individual instructors

4. Professional status of LRC personnel
5. Separation of independent study materials from regular learning

B. Which individualized programs are housed in the LRC?
1. Extent to which LRC involved in the development of programs?
2. Location dictated by equipment requirements? Duplication of programs?
3. Jurisdiction determined by enrollment in programs? For given purposes?
4. Some individualized studies programs administered by another division?
5. Is the instructor involved in the distribution of materials?

C. What is the best organizational pattern for the LRC?
1. To whom does the facility report-Instructional Dean? President? Academic area? Research?
2. What functions should be included?
   a. Supervision of programs
   b. Production of materials, including planning, assistance, in selection of methodology and content.
   c. Direct participation in teaching process? Screening of students? Testing? Grade assignments and credit issued by LRC?
   d. Centralized purchasing vs. departmental budgeting?
   e. Circulation and cataloging of materials
   f. Part-time classroom teaching assignment?
3. Accrediting standards: Qualitative/quantitative guidelines set by CCAIT, ALA, and/or CCLAMS? Statewide measurable objectives? Requirements for subject area qualifications? Criteria justification for allotment of funds?
4. Compensation and fringe benefits based on same criteria as classroom instruction?

II. New Styles for a New Age. (Recommendations of Instructional Resource Personnel.)

A. Desire non-threatening relationship with faculty and department heads.
B. Budgeting will serve to create organizational pattern within institution.
C. Availability of programs to students criterion for location of programs.
D. Division of materials between departments and LRC based on user convenience.
E. Accessibility of tutorial assistance advantageous.
F. Counseling by media specialists to satisfy needs of patrons.
G. Freedom of movement and choice for student, but within defined paths for formal individaul study.
H. Identity established for role in educational process.
I. Need for analogy of audio-visual materials with print materials.

J. Participation in curriculum development and design of materials.
K. Support of national organizations helpful in gaining recognition of the broad scope of operational areas of the LRC in individualized study and the need to adopt standards for a model.

III. The Finishing Touch (Consensus Statement)

The LRC is primarily supportive in nature, but important to the learning/teaching process and intended to serve in instructional programs of the local institution. This extension of the educative function must sustain the justification for and the economy of staffing and equipping interdisciplinary learning centers.

The role exerted by the LRC is presently defined by the parent institution. It is desirable to set up an academic committee which studies and draws guidelines for administration, faculty, and staff interrelationships. Budget procedures can help unify organizational structure and clarify patterns of responsibility.

The afternoon session was devoted to defining, with the use of role-play exercises, the function of the LRC in individualizing education. The intention was to develop the model by implication and by relating the various home situations represented. A typical situation was outlined in which we were to follow through the steps usually inherent in producing the finished product or request. The process was initiated with a simple, basic objective-that of devising a tape to supplement the classroom instruction of a traditional teacher never having utilized any innovative educational aids. The same procedure was expanded to incorporate a sound/slide presentation of the same content, but this second time by enhancing the learning experience with visual exposure as well. Finally, the process was followed for a total instructional package, ie., and integral portion of a course, to bring to light some of the decisions affecting the final learning packet. Probably as a result of our limited time available, we realized late in the session we had not touched on some aspects related to the development of individualized instructional units.

For the sake of brevity and ease in assimilation, the following points have been outlined to illuminate those considerations and the staff involved in tracing the planning and completion of an in-house production.

A. Situation: Traditional Sociology instructor wishes to supplement classroom instruction with tape segment, needs help in an implementing device into regular curriculum since he is unfamiliar with newer educational tools.
B. Roles: Specified by individuals who undertake assignments according to their particular circumstances and experiences.

Instructor: Having attended conference on innovative learning practices, he is eager to experiment.

Media Coordinator (Specialist): Professional staff member trained to augment new teaching aids in the instructional programs.

AV Technician: Person trained in technical operation and maintenance of equipment, as well as production of requested materials with specified outcomes.

LRC Director: Responsible for use, distribution, housing, recommendations for possible modification of content or mode of presentation, evaluation of individualized study.

Learning Lab Supervisor: Organizer of materials and circulation, coordinator of instructional programs within designated areas; possibly makes assignments, evaluates performance, grants grades and course credits.

C. Procedures in reaching objectives: (approximate sequential order)

1. Instructor makes inquiry into obtaining desired learning supplement.
2. Investigation of available resources to ascertain whether suitable material already prepared.
3. Instructor requests material to be produced in AV department.
4. Media Specialist confers with instructor on intended purpose for material, inclusion in learning program, content, source of information; may recommend format, sequence, approach to topic, details of presentation, schedule of work.
5. AV Technician explains alternatives for method of getting material in usable format, instructs in use of production equipment, supplies necessary equipment and production materials, operates equipment, oversees processing, completion date.
6. Stenographer assists in making scrips, lists of scenes or photographic shots, arranging on-site appointments, may help in researching materials already on hand.
7. AV Technician instructs in use of playback equipment and precautionary measures in handling materials, makes available at appropriate location and time.
8. Student volunteers, or otherwise supplies, reaction to use, selection, availability of instructional tools, possibly overlooked needs.
9. LRC Director may decide policies for distribution and housing of learning resources, allocates funds available for staff, materials and equipment.
10. Learning Lab Supervisor confers with instructor on method of presentation to users, duplication and location of materials, point of distribution, when

needed security measures required, qualifications of personnel working with students, possible criteria for evaluative judgments, standards by which students' performances are assessed.

D. Procedures excluded but important considerations
   1. Formal or informal contact with Division Chairman to inform of plans and/or seek advice regarding instructional materials.
   2. Budgetary procedures and policies - funds apportioned by departments or total school allotment administered under Learning Resources, funds designated for Research and Development of Instruction.
   3. Time/Cost facotrs and extent to which they may influence choice of instructional materials.
   4. Curriculum planning restricted to periodic review and total course approach vs. sporadic, hit-or-miss, "Tinkertoy" revision and additions.
   5. Placement of Educational Development Officer in organizational structure.

Barbara Chesman
Recorder

GROUP SESSION F

Science and Technology

Jim Arnwine, Chairman:
Floretta Haggard, Recorder
Alma Mueller, Recorder

Conferees:

Floretta Haggard, Claremore Junior College, Claremore Oklahoma
Angus King, Humber College, Toronto, Ontario
Bill Irby, Platte College, Columbus, Nebraska
Bob Sholl, Platte College, Columbus, Nebraska
Ken Allen, Waubonsee Community College, Sugar Grove, Illinois
R.L. Heider, Meramec Community College, St. Louis, Missouri
Arnold Greer, Meramec Community College, St. Louis, Missouri
Al Pritchett, East Central Junior College, Union, Missouri
David Moon, D.S. Lancaster Community College, Virginia
Daniel Ring, Marshalltown Community College, Marshalltown, Iowa
Ed Reeves, Eastfield Community College, Mesquite, Texas
Scott Brown, Coffeyville Community College, Coffeyville, Kansas
Sally Taylor, Forest Park Community College, St. Louis, Missouri
Harold Hughes, Central Nebraska Technical College, Hastings, Nebraska
Alma Mueller, Community College of Denver, North Campus, Denver, Colorado
Benjamin Chang, Mineral Area College, Flat River, Missouri
Steve Koestel, Mineral Area College, Flat River, Missouri
Mike Felton, Johnson County Community College, Overland Park, Kansas
Phyllis Priest, Southwest Community College, Creston, Iowa
Gary Klein, Cuyahoga Community College, Cleveland, Ohio
Richard Blazier, Parkland College, Champaign, Illinois
Victor Cox, Parkland College, Champaign, Illinois
George H. Kieffer, University of Illinois, Urbana, Illinois
Michael J. Postula, Parkland College, Champaign, Illinois
David A. Mathews, State Fair Community College, Sedalia, Missouri
Hugh Hardis, Crowder College, Neosho, Missouri
Lewis Sponseller, Marshalltown Community College, Marshalltown, Iowa
Mary Ann Meyer, Marshalltown Community College, Marshalltown, Iowa

All participants of this section initially were to give a brief resume' of the type of individualized instruction that they were presently involved with at their home institution; however, at least one-fourth of all present were there as observers. The observers were very interested in individualized instruction and seemed to have learned a great deal necessary for the successful implementation of a program.

Many questions were raised along with problems some participants were having with their programs. Also, in three instances film demonstrations of new techniques were given.

One of the first problem areas was brought up by Jim Arnwine (Independence, Kansas). He indicated that the personal problems of students were presented to him ten times as often since he had initiated his individualized approach to teaching. Many other participants concurred that they were faced with the same situation and in two instances "roving counselors" were hired to help instructors in their guidance areas. Many other participants indicated that they had a good referral system with counseling personnel while others (especially in smaller colleges) found that students would rather have personal problems discussed with an instructor than a counselor. One person indicated that if the present individualized instruction increased in popularity the counseling situation could be alleviated somewhat if more teacher preparation emphasis were placed on "counseling for junior college instructors."

Angus King (Ontario, Canada) indicated that the problems he was faced with were acquisition of resources (especially hardware), teacher resistance to innovation, and too much emphasis on printed matter in the individualized approach to teaching. He was quickly informed by 25 United States participants that his problems were shared by all. Angus passed our several completed syllabi used in his basic education, non-transfer program.

Ken Allen (Sugar Grove, Illinois) asked the group about the feasibility of using a large centrally located common lab for chemistry, biology and physics. It was agreed by all participants that such a plan would most likely work as long as one provided specific areas for demonstrations and laboratory materials for each discipline. In fact, three participants had a similar plan already in utilization.

Dr. Rudolph Heider (Kirkwood, Missouri) related that he had problems with time and space. He said that this was primarily attributed to the heavy work loads of students. Other participants had similar problems. Jim Arnwine reported that the average student work load in his home institution was 23 hours per week per student. Mike Felton (Overland Park, Kansas) stated that his institution was faced with the same problem but that it had been somewhat alleviated since they were teaching 40% of their classes during the evening.

David Moon (Clifton Forge, Virginia) reported that the attrition rate was extremely high at his institution. He indicated that the utilization of individualized instruction during the past few years proved no better than traditional teaching in curbing attrition rate. Other participants who were using the individualized approach collectively agreed that they

found less attrition rate in their home institutions since switching from traditional lectures. David then brought up the idea of issuing performance teaching contracts to enhance enrollment and agreed to re-evaluate the type of individualized instruction taking place at his college.

Scott Brown (Coffeyville, Kansas) brought up the question, "Just who is geared for teaching the systems approach?" Scott indicated that some teachers would be far more effective in the traditional role than in one employing the individualized approach to learning. It was felt by the majority of the participants that no administrator should make it mandatory that all instructors adopt their courses to the systems approach. However, if systems courses in general prove to be a more effective mode of teaching than traditional courses, and this fact can be substantiated by hard data, one can readily visualize that the majority of college instructors will voluntarily utilize the most efficient means of teaching.

Scott also brought out a point relative to the fact that all students do not learn better through individualized instruction. His college (Coffeyville Community Junior College) is presently giving all students a battery of tests to ascertain whether students should be placed in traditional or individualized classes. No other participant was involved in this type of placement.

Arnold Greer (Kirkwood, Missouri) related that one constant problem he has had with integrated taped lectures and laboratory during the past several years was that students do not perform laboratory exercises when asked to during the tape; instead, they perform them after the tape has been terminated. For this reason Arnold suggested that we should divorce the laboratory from audio tapes. However, Richard Blazier (Champaign, Illinois) indicated that this problem did not exist for him Also, he added that as long as students met the educational objectives of a course it should not matter when they perform their laboratory exercises. Jim Arnwine expressed his feelings that the means to an end for students grasping concepts should not pose a particular problem as long as they show adequate proficiency.

Harold Hughes (Hastings, Nebraska) is developing three channels of learning for the same objectives. Harold's views were somewhat complementary to Scott Brown's views relative to various modes of learning for different students. Assuming that some students learn faster by listening, others by reading and still others by listening and reading simultaneously, Harold felt that all three modes should be made available for each topic or concept. Harold is presently preparing an audio tape, typed script and visual aids with integrated audio tape for each teaching topic. Three participants expressed a philosophy different than the above

plan. For instance, we as teachers should feel responsible for teaching students skills other than in specific subject areas. If a student learns best by reading perhaps his listening comprehension should be built up; conversely, if a student learns best by listening perhaps he should learn to concentrate more on reading comprehension.

Jim Arnwine (Independence, Kansas) discussed the importance of the TAP Project, especially to those participants who were contemplating the laborious task of developing materials that might already be available for purchase. Also, the procedure for copyrighting programs and the need for a reciprocity agreement between institutions relative to sharing prepared software were discussed. All participants agreed that some type of communication system be established, especially among colleges relatively close together, so that various software media could be mass produced and shared to offset expensive printing costs.

Sally Taylor (St. Louis, Missouri) explained that she has stopped her individualized instructional program because of lack of necessary funds to maintain hardware. However, even though she is contemplating revamping her program whenever funds are made available, Sally brought up some interesting points. First, Sally questioned whether mechanized instruction was the best mode for teaching students. Also, she stated that we sometimes get so engrossed in our teaching methodology that we sometimes forget that students should learn the methodology of science instead of learning just specific facts about science. Sally went further to suggest that we integrate reading and comprehension skills into science areas. Several participants responded to Sally's remarks. First, it was stated that regardless of the mode of instruction -- mechanized or otherwise -- the important aspect of education is for students to demonstrate their mastery of learned concepts. As long as measured mastery of a course meets the instructor's specifications, most participants did not feel that mechanized instruction was deleterious to the educational process. It was further felt by most participants that if scientific methodology is left out of instruction it could easily be implemented as a result of revamping educational objectives. All participants felt that Sally's suggestion relative to integrating reading and comprehension skills into science areas was excellent. In fact, one institution (Independence Community Junior College, Independence, Kansas) has just recently implemented such a program in several disciplines.

Alma Mueller (Denver, Colorado) related that she had problems with her students preparing for an exam the night before it is to be given. One participant indicated he had alleviated this problem by giving small weekly exams so that students are enticed to study course materials every week. Alma also indicated that she felt students were given too much guidance in following educational

objectives and fail to sift through materials and search out answers. Again, it was felt by the majority of participants that if an instructor's objective is to have students diligently search through the literature for answers it should be so stated in the course objectives.

Gary Klein (Cleveland, Ohio) indicated that his institution was engaged in the utilization of computers in the placement of students after they have taken entrance diagnostic tests. This method of placement seemed new to most participants.

Rich Blazier (Champaign, Illinois) indicated that at his institution the students were allowed to choose their mastery of competency -- A, B, or C. He was very optomistic about the results of this plan. Rich also related that his department began structuring laboratories due to the difficulties they were having with unstructured labs. Jim Arnwine stated that in his institution it was not necessary to structure labs; however, he felt it necessary to structure discussion groups. Arnold Greer said that he could not justify open labs and was in favor of complete structuring of individualized instruction. Arnold said that "We are forcing self-pacing on students when they are not ready."

George Keefer (Coordinator of Junior College Instructors, University of Illinois, Champaign, Illinois) an observer, expressed his appreciation to be able to visit the ranks of teachers in order to keep abreast of new trends in education.

Mary Ann Meyer (Marshalltown, Iowa) described a problem she was having with self-pacing individualized instruction. For instance, in working with dental assistants who are working on many separate units, it is very difficult to utilize visiting dentists for technique demonstrations when many students are not ready for the demonstrations. No resolution was made of this type of problem -- time was a factor.

Jim Arnwine
Chairman

GROUP SESSION G

Social Science and Behavior Science

James Adduci, Chairman
Joseph H. Landeau, Recorder

Conferees:

Jim Adduci, Moraine Valley Community College, Illinois
Bob Packard, University of Missouri, St. Louis, Missouri
David Tetrault, Jefferson College, Hillsboro, Missouri
Max Lorenz, Jefferson College, Hillsboro, Missouri
Wilson Walker, Ricks College, Rexburg Idaho
Jim Wheeler, Meramec Community College, Kirkwood, Missouri
Edward Opper, Nocolet College, Rhinelander, Wisconsin
John Galliford, Hibbing State Junior College, Hibbing, Minnesota
Don Green, Westinghouse Learning Press, Palo Alto, California
Charlotte Ann Rike, Platte College, Columbus, Nebraska
Duane Flessner, Platte College, Columbus, Nebraska
Jules Biegelsen, Meramec Community College, St. Louis, Missouri
Clara Jensen, Waukesha County Technical Institute, Pewaukee, Wisconsin
Barry W. Ellis, Jefferson College, Hillsboro, Missouri
Russell Walker, Crowder College, Neosho, Missouri
Larry Ament, State Fair Community College, Sedalia, Missouri
Deecy Stephens, Florissant Valley Community College, St. Louis, Missouri
Rolland C. Haun, Florissant Valley Community College, St. Louis, Missouri
Joseph H. Laudeau, Mineral Area College, Flat River, Missouri
Ralph L. McBride, Ricks College, Rexburg, Idaho

Our first approach was to describe briefly our current relationship to individual study:

1. Each of the colleges reported on what they were currently involved in with respect to individual study programs.
2. Many were present to get information in order to institute some form of such programs at their own schools.
3. The group made some distinction between "individualized instruction" and independent study.
4. Some institutions were using the traditional approach, with tapes, slides, aids, and the student studying independently, and reporting for exams. Others used a contract approach, some quantitative, others qualitative for grading persons. None reported a "pass-fail" option except one, where it was limited to non-transfer and non-degree individuals.
5. Some institutions select only the A or B students for these programs but the majority did not, believing that such programs ought to be opportunities for students.
6. One community technical college in Nebraska is completely on the individualized study approach.

7. One school will set up a course for a single student, if he is in need of it. This is a large college.
8. One representative of a firm preparing materials for self study overviewed the procedures used in several colleges he has visited.
9. The summation indicates that the social sciences are probably utilizing individual study more than other disciplines, with science, mathematics, and business education also leading the way.

Our group also considered various aspects of such instruction, with these questions and partial conclusions:

1. Content logic: modules, pre-test, post-test, learning objectives, student response to concept of individual study retaining objectives even in the traditional approach, and stressed the pre-test importance in history and government, particularly.
2. Individual Instruction and Independent Study: Synonymous? The group asked about flexibility or lock-step approach either chronological or self-pacing. How do we handle varying rates of learning? How to involve the student in determining what to study? We concluded the seminar is important for interaction, feedback, etc., and that individual study is a process involving objectives, pre-test, post-test, and recycling.
3. The assets and liabilities incurred in such an individualized approach to learning.
4. How does such a program lend itself to the cognitive domain? To the affective domain in student behavior?
5. Student attendance: Through conferences? Group meetings? Optional attendance at seminars? All were discussed, and a wide variety of procedures were described ranging from grades on points earned partially from attendance and student selection of rated options (reports, papers, book summaries, etc), to no attendance other than reporting for exams on units.
6. Rationale for such programs was also aired. Conclusions aired were varied, from "students learn best what they learn themselves", to "opportunities", working at own speed, able to start or finish at any time, developing student responsibility for his own learning, and others.
7. Procedures for developing independent study guidelines: from the administration? Who approves and how? Role of the department and the individual instructor; some have released time to prepare courses ranging from 2 to 10 hours, though one was half-time while others had summer curriculum employment.
8. Transferability seemed to be no particular issue, since these are primarily standard courses offered by the institution on the same basis as any other transfer or non-transfer course.
9. Class size and teaching load: There was a need to have means of assessing this in the teaching load. How to compensate salary-wise also was a concern. The availability of student assistants or paid student help was a factor in determining load,

and more supportive help was unanimously seen as essential. The utilization of testing centers by a number of representatives was deemed a tremendous help in the total load picture, while others did not have such service.

10. Funding, where necessary, was considered: Only two had grants,(1 state, 1 private foundation) while all others were dependent upon regular institution budget procedures.

The group did conclude that a high correlation existed between humanization and hardware, primarily because of the maximum usages once funds were spent, and that exploration into validation would prove profitable.

Joseph H. Landeau
Recorder

Descriptions and Papers Available from Conference Participants

On the next several pages the Conference Coordinator has attempted to abstract* the papers and descriptions which were circulated during the Meramec CCAIT Conference. In most cases the complete document is available from the authors listed.

IMPLICATIONS OF INDEPENDENT STUDY FOR COMMUNITY COLLEGES

A Research Report

Evelyn Roberts
Meramec Community College

A report on independent study practice with the following brief implications for community colleges:

1. Self-directed study leads to changed educational values.
2. Lower ability students profit most from self-directed study.
3. Special orientation is needed for teachers engaged in supervision of self-directed study students.
4. Voluntary - credit programs are usually more acceptable.
5. Semi-independent study is more efficacious for community colleges.
6. Independent study is no substitute for work that can be accomplished in a traditional manner.
7. Teachers need to be catalytic agents and advisors.
8. Students need some training for independent study.
9. Student failure is minimized through self-directed study.

THE ACCOUNTING LABORATORY

Mrs. Pat Hunter
Meramec Community College

An open laboratory equipped with machines and materials appropriate for students in college accounting courses. The laboratory is staffed by a paraprofessional about 20 hours per week. Students report that the lab helps overcome individual obstacles in the learning process.

AUDIO-TUTORIAL APPROACH TO ANATOMY AND PHYSIOLOGY

James Macdonald
Carl Sandburg College

The course consists of nine basic units and each unit consists of a ten to twenty minute taped discussion, a manual for each unit, a

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* With apologies to the authors for the writer's limitations.

35mm slide series for each unit, an articulated and disarticulated skeleton, and appropriate radiographs to demonstrate the anatomic features discussed on the tape and illustrated in the manual.

Each unit manual consists of an introduction and instructions, objectives for the unit, diagrams to accompany the tape and information on the slide series. Following completion of the unit by the student, a "self-test" is available in order that the student might determine his mastery of the unit.

THE ASSOCIATE DEGREE NURSING LABORATORY

Mrs. Jean Bussard
Meramec Community College

This facility serves the 200 students enrolled in the nursing program at Meramec. The laboratory features carrels equipped for self-study with audio-visual programs. The laboratory also is used to simulate nursing practice through the use of manikins. The nursing courses are based on behavioral objectives which have been developed by the staff.

AUDIO-TUTORIAL BIOLOGY AT MERAMEC

Robert Gillespie
Meramec Community College

The operating procedures for Audio-Tutorial Biology at Meramec may be described as follows:

1. Monday - large assembly session, 60-80 students
2. Tues & Wednesday - A-T laboratory, individual students
3. Thursday - small assembly session, 10-15 students
4. Friday - large assembly session - review and testing

The following data are available:

	Traditional (1964)	Audio-Tutorial 1964
Number Students	607	653
Percent A & B	22.0	32.6
Percent C	39.5	41.3
Percent D & F	38.7	26.0

GENERAL BIOLOGICAL CONCEPTS

An Individualized Biology Course by James Arnwine (available through University of Kansas Extramural Center)

James Arnwine
Independence Kansas

A complete biology course consisting of thirty-six audio tapes, self-instruction materials and laboratory exercises. Each unit contains a set of educational objectives, study sheets and exercises. The course is designed to be used for either self-instruction for students working alone or for self-instruction for students working in groups.

BIOLOGY AT PARKLAND COLLEGE
A Mastery Learning System

Richard Blazier
Parkland College

A multiple access-tutorial program consisting of learning modules. Modules contain written materials, films, illustrations and video tapes. Learning proceeds in carrels located in the biology laboratories. Small group discussions are held weekly. Mastery learning is set by the student contracting for the grade desired. Students are self-paced and move from unit to unit by mastery achievement.

AUDIO-TUTORIAL BIOLOGY COMPARED TO TRADITIONAL BIOLOGY

Larry W. Cox
Dean, Maplewood College

This study used the biology materials developed by James Arnwine of Independence, Kansas. The following data are reported for the 1966-70 time period.

	Traditional Biology	Audio-tutorial Biology
Number Students	458	280
Percent A & B grades	14.4	35.1
Percent C grade	12.6	17.1
Percent D & F grades	47.8	22.5
Percent Withdrawal	25.1	24.3

91% preferred the audio-tutorial Biology.

AUDIO-VISUAL-TUTORIAL SYSTEM FOR DRAFTING

Al Ostergaard
Meramec Community College

A self-learning, self-paced system for students in college technical illustration and drafting. Students use the self-paced materials as required in order to proceed from task to task. The teacher encourages students, evaluates performance, prescribes learning activities, develops self-learning materials and validates student achievement.

THE CHAFFEY ELECTRONICS PROJECT

Dr. Henry E. Childs
Chaffey College

A self-paced program in electronics developed by a joint effort of Chaffey College and Data-Design Laboratories. The course consists of the SPIRIT workbook, educational objectives, exercises and self-evaluation materials. Students are directed through a three step procedure: Study - Do - Self evaluate. Mastery examinations are administered at the end of each section. These exams consist of a written test, an oral and a performance test. Fifteen sections of the two year course have been completed.

ENGLISH COMPOSITION AT HUTCHINSON COMMUNITY JUNIOR COLLEGE

Arless Eilerts
Hutchinson Community Junior College

This is a course which is designed for students who are not able to master English Composition I during a regular semester of study. Students enter the course as based on diagnostics. Mastery of each level of composition is required prior to moving to another level. Materials are selected so that students have a variety of learning activities available for each level of achievement. Failure to achieve at a mastery level results in recycling the student through appropriate learning activities and retesting.

PROGRAMED ELEMENTARY FRENCH COURSE

Mrs. Rosemary Thomas
Forest Park Community College

The programed course is divided into three phases; phonology, unembedded utterances and embedded utterances. The self-instructional materials releases the instructor of the need to dispense basic information, thus, providing more time for encouragement, enrichment, diagnosis and prescription. This course is in its third year of development.

PROGRAMED INSTRUCTION IN FOREIGN LANGUAGES

Dr. Anna Marie Lottmann
Meramec Community College

The selected language is learned in a laboratory setting. The student listens to tapes and records his own voice to check pronounciation. The tapes enable the student to repeat a word as often as desired to achieve native accuracy. One works independently and progresses at his own rate. An instructor is present in the lab during assigned periods to answer student questions, and to give or grade tests. Once a week, students meet in a classroom to practice through conversation what they have learned.

There is no homework, and the time spent in the lab can vary according to the student.

The grading system is one of the most attractive facets of programed instruction. Students are tested on material they have covered only when they feel ready. This insures a successful grade, usually an "A" or a "B".

If a student does not complete the work within a semester, he gets a grade of "W" which does not equal a penalty grade. And he can continue the next semester from the level at which he left off, then start the second semester's work. On the other hand, if the student completes the first semester's work before the semester is over, he may go on with the second semester's work. Some students have even finished two semester's work in a single semester. Of the courses now offered, German and French both cover a year, while Spanish has

one semester.

Programed instruction has received mostly favorable comment from the participating students.

INNOVATIVE COURSES AT SHERIDAN COLLEGE

Derek Dalton
Sheridan College
Oakville, Ontario

Teaching by objectives:

Investments, Money & Banking, Business Organization, Marketing, Accounting, Finance, Business Math, Economics.
Modules:
Electricity, Instrumentation, Chemistry, Mathematics, Soil & Concrete, Drafting.
Audio-Visual:
Business Management, A.C. Theory, Chemical Instrumentation, Slide Rule, Silk Screen Printing, Sociology, Psychology, Language Development.

A MEDIA APPROACH TO AMERICAN HISTORY

Jules Biegelsen
Meramec Community College

This is a topical approach to American History in which each topic is considered as a whole with respect to history during the past 100 years. The course is based on behavioral objectives. Thus, learning materials have been developed to lead each student to the achievement of each objective. The learning materials include a text book, audio tapes, films and illustrations. A weekly discussion hour is used to complete each week's self-paced study. Criterion achievement is required to proceed to sequential units.

INDIVIDUALIZED INSTRUCTION IN THE LIFE SCIENCES

Steven L. Koestel
Mineral Area College

The Life Science courses taught for nursing students (those enrolled in the college's ADN program) have been divided into subject units and behavioral objectives for each unit have been developed and revised. A variety of learning experiences including lectures, video-tape presentations, audio tapes, 8 mm. film loops, and class and panel discussions, are provided. The evaluations of the students' mastery of these units are also conducted in a variety of ways. In these courses a study is being conducted to correlate the students' success in the course and the mastery of the subject material as provided by the standardized NLN Achievement Tests. Preliminary results indicate a strong correlation between the two. Other courses, such as Botany, Health, General Biology and Genetics are being taught and developed in much the same manner.

THE MATHEMATICS LABORATORY

Mrs. Frances Mangan
Meramec Community College

Students in four courses...Basic Math, Elementary Algebra, Geometry and Intermediate Algebra...use the mathematics laboratory. All course work is individualized and all students are self-paced. Each student initiates mathematics learning as based on pretesting and students proceed from unit to unit by mastery achievement. This facility is staffed by both college instructors and teaching assistants. The lab serves about 800 students each semester.

INTRODUCTION TO NURSING

Alma Mueller
Community College of Denver

A modular approach to Nursing which includes goals, objectives, vocabulary, references, procedure for learning and assessment of learning.

TAPED MINI-LECTURES FOR POLITICAL SCIENCE

Richard H. Baker
Meramec Community College

A set of thirty-two audio tapes which includes the major topics covered in an introductory political science course. Each taped lecture is accompanied by a listening guide and map charts or other illustrations. The lectures are aimed at basic information transfer.

INDIVIDUALIZED INSTRUCTION IN PSYCHOLOGY

Dr. Joseph H. Landeau
Mineral Area College

Individualized instruction in Psychology at Mineral Area College is designed to increase the opportunity for student learning. The course is based on learning objectives and self-paced learning. Each student may complete a unit and the unit test at a rate which is best for him (her). The unit test is administered in the testing center after which a personal conference is arranged to review the test and to introduce the next unit. Student achievement is currently greater than 90% successful course completion.

SELF-DIRECTED LEARNING: AN ALTERNATIVE APPROACH

Dr. Walter E. Hunter
Meramec Community College

The Self-directed Learning Program is based on an individualized learning contract which is developed cooperatively between a student and a course supervisor. The contract usually details the course objectives, prescribes learning activities and specifies course evaluation procedures. The contract may be initiated at any time

during the college year and may be in effect for any period of time...the contract usually prescribes learning activities which recognize the student's unique educational and experiential background.

The outstanding feature of the Meramec Self-directed Learning program is its flexibility. Students may enroll for classes at any time, proceed at an individual pace and utilize a mode which fits their learning style. The program works well, record keeping has been programed for the computer and the program has continued to grow so that more than 1,000 students were enrolled during the 1971-72 academic year.

SELF-INSTRUCTION CENTER

Mrs. Barbara Chesman
Meramec Community College

A self-learning center located in the library. This center serves all instructional departments by providing materials and audio-visual equipment which are appropriate for self-instruction. Students may use the center at their own volition or they may use the center as part of their course work as assigned by the course instructor. The center is able to provide small modules of self-instruction to meet specific needs or the center may provide a complete packaged college course on a self-instruction format.

CONFERENCE EVALUATION

The Meramec Conference Evaluation is based on the questionaire response from slightly more than 50% of the conferees.
The following questions can be partly answered:

1. What was your primary objective for attending the conference?

   Eighty percent of the conferees stated that they attended the conference to gain information about individualized instruction.
   Twenty percent of the conferees stated that they attended the conference to share information about individualized instruction.

2. Was your objective achieved through your participation in the conference?

   Forty percent stated that their objective was well achieved.
   Fifty percent stated that their objective was partly achieved.
   Ten percent stated that their objective was not achieved.

3. How would you rate this conference compared to other conferences?

   Eighty percent rated the conference as good to excellent.
   Sixteen percent rated the conference as fair.
   Two percent rated the conference as poor.
   Two percent did not respond to this question.

4. What aspect of this conference was most significant to you?

   Forty percent indicated that the group sessions were most significant.
   Thirty percent indicated that the opportunity to meet peers from other colleges was most significant.
   Twenty percent indicated that the Meramec tour was most significant.
   Six percent indicated that the conference materials were most significant.
   The remaining four percent scattered their responses to include the banquet, an evening in St. Louis, etc.

5. How would you improve the conference?

   The responses to this question were mixed, however, some conferees made the following suggestions (in order of frequency)
   a. More time for group sessions
   b. Different groupings
   c. Tighten structure of conference
   d. Plan more demonstrations
   e. Make a tape recording of group sessions
   f. Improve orientation of group leaders

CONCLUSIONS:

Although the conference was generally well accepted by the conferees, certain improvements should be made in planning future conferences:

1. The MCC conference could have been improved by structuring the first days' activities...expecially the MCC tour. Many conferees did not follow the tour and thus did not have an opportunity to see individualized instruction at Meramec.

2. The MCC conference could have been improved by starting the group sessions on Thursday afternoon and allowing these sessions to continue all day Friday.

3. The MCC conference could have been improved by arranging more demonstrations of individualized instructional methods and materials.

LIST OF CONFEREES

ADDUCI, JAMES (SOC. SCI.)	MORAINE COLLEGE	PALOS HILL, ILL. 60465
ALLEN, WANDA (ENGLISH)	HUTCHINSON COLLEGE	HUTCHINSON, KANSAS 67501
ALLEN, KENNETH, W. (DEAN)	WAUBONSEE COMM. COLLEGE	SUGAR GROVE, ILL. 60647
ALSUP, ROSS G. (DEAN)	PARIS JR. COLLEGE	PARIS, TEXAS 75460
AMENT, LARRY	STATE FAIR COM. COLLEGE	SEDALIA, MISSOURI 65301
ARNWINE, JAMES E. (BIOLOGY)	INDEPENDENCE COLLEGE	INDEPENDENCE, KANSAS 67301
ATKINS, MIKE (MATH)	CUYAHOGA, COM. COLLEGE	CLEVELAND, OHIO 44115
BAUGLIN, LAURA (HEALTH)	WAUKESHE TECH	WAUKESHE, WISCONSIN 53186
BAUM, NANCY	OLIVE-HARVEY	CHICAGO, ILLINOIS 60628
BEDE, PHIL (LANGUAGE)	PLATTE COLLEGE	COLUMBUS, NEBRASKA 68601
BEECHER, WILLIAM (BUS.EDUC.)	WAUKESHE TECH	WAUKESHE, WISCONSIN 53186
BENNETT, MADELEINE (INST.)	YMCA COLLEGE	CHICAGO, ILL. 60606
BIEGELSEN, JULES (HIST.)	MERAMEC COLLEGE	KIRKWOOD, MISSOURI 63122
BILLINGTON, JO ANN	STATE FAIR COM. COLLEGE	SEDALIA, MISSOURI 65301
BILLS, SETH	RICKS COLLEGE	REXBURG, IDAHO 83440
BLACK, TIMMEL D. (V.PRES.)	OLIVE HARVEY COLLEGE	CHICAGO, ILLINOIS 60628
BLAZIER, RICHARD (BIOLOGY)	PARKLAND COLLEGE	CHAMPAIGN, ILLINOIS 61820
BOLWIN, BOYD	BELLEVUE	BELLEVUE, WASH. 98007
BOCK, JOLEEN (LRC)	COLL.OF THE CANYON	VALENCIA, CALIF. 91355
BOLDEN, OTIS L. (ADMIN.)	FOREST PARK COM.COLLEGE	ST. LOUIS, MO. 63110
BOSS, HENRY (PROF.)	SO. ILL. UNIVERSITY	EDWARDSVILLE, ILL. 62025
BREITWIESER, MARTHA	KELLOGG COM. COLLEGE	BATTLE CREEK, MICH. 49016
BRIN, PAULA (ENGLISH)	HUTCHINSON COLLEGE	HUTCHINSON, KANSAS 67501
BROWN, SCOTT (BIOLOGY)	COFFEYVILLE COLLEGE	COFFEYVILLE, KANSAS 67337
BROWN, FLORENCE (SOC.)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
BRUCE, TERRY	KELLOGG COM. COLLEGE	BATTLE CREEK, MICH. 49016
BURNHAM, NELL	PLATTE COLLEGE	COLUMBUS, NEBRASKA 68601
BYRD R. EUGENE (DEAN)	OSCAR ROSE JR. COLLEGE	MIDWEST CITY, OKLA. 73110
CAIN, RONALD (MATH)	SOUTHWESTERN COM. COLLEGE	CRESTON, IOWA 50801

LIST OF CONFEREES

CALLIN, DIANA	HARPER COLLEGE	PALATINE, ILL. 60067
CAMERON, SUSAN (OPEN)	WAYNE CO. COMM. COLLEGE	DETROIT, MICHIGAN 48202
CARLOCK, PHIL. (DEAN)	FOREST PARK COMM. COLLEGE	ST. LOUIS, MO. 63110
CATANIA, JAMES (GEN.EDUC.)	WAUKESHE COUNTY TECH	WAUKESHE, WISC. 53186
CHANG, BENJAMIN (CHEMIST)	MINERAL AREA COLLEGE	FLAT RIVER, MO. 63601
CHESMAN, BARBARA (LIBRARY)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
CHILDS, HENRY E. (V.PRES.)	CHAFFEY COLLEGE	ALTA LOMA, CALIF. 91701
CHRISTENSEN,FRANK (LEARNG.LB.)	WM. RAINEY HARPER COLLEGE	PALATINE, ILL. 60067
CORNWALL, MARION	MARSHALLTOWN COMM. COLLEGE	MARSHALLTOWN, IOWA 50158
COX, LAYY W. (DEAN)	MAPLE WOODS COLLEGE	KANSAS CITY, MO. 64156
COX, VICTOR B. (BIOLOGY)	PARKLAND COLLEGE	CHAMPAIGN, ILL. 61820
CRADY, STEPHEN L. (A-V DIR.)	ILL. CENTRAL COLLEGE	E. PEORIA, ILL. 61611
DALTON, DEREK (LIBR.)	SHERIDAN COLLEGE	OAKVILLE, ONTARIO
DARBY, SHARON A. (READING)	HUTCHINSON COMM. COLLEGE	HUTCHINSON, KANSAS 67501
DAVISON, JAMES L. (V.PRES.)	HUMBER COLLEGE	REXDALE, ONTARIO
DOUGLASS, STEPHEN E.	STATE TECH. INST.	MEMPHIS, TENN. 38128
DUER, MILO (ENGLISH)	MO. BAPTIST COLLEGE	HANNIBAL, MO. 63401
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ELIFF, JOHN H.(COORDINATOR) (DATA PROC.)	ST.LOUIS JR. COLLEGE	ST. LOUIS, MO. 63110
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FARRELL, TOM (DEVELOP)	FOREST PARK COLLEGE	ST. LOUIS, MO. 63110
FELTON, MICHAEL (COORD.)	JOHNSON COUNTY COLLEGE	OVERLAND PARK, KANSAS 66660
FLESSNER, DUANE (SOC. SCI.)	PLATTE COLLEGE	COLUMBUS, NEBRASKA 68601
FRANCISCO, DAVID E. (LRC)	FOREST PARK JR. COLLEGE	ST. LOUIS, MO. 63110
FULLER, MARY B. (BUS. EDUC.)	FOREST PARK COMM. COLLEGE	ST. LOUIS, MO. 63110
GALLIFORD, JOHN (PSYCH,)	HIBBING ST. JR. COLLEGE	HIBBING, MINN. 55746
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GREEN, DONALD E. (DEVELOP)	CLINTON COMM. COLLEGE	CLINTON, IOWA 52732
GREEN, DONALD F. (SALES)	WESTINGHOUSE	HINSDALE, ILL. 60521
GREER, ARNOLD (BIOLOGY)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
HAGEBUSH, VIRGINIA(LIBR.)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
HAGERMAN, DOROTHY L. (LRC.)	SPOON RIVER COLLEGE	CANTON, ILLINOIS 61520
HAGGARD, FLORETTA (CHEMISTRY)	CLAREMORE COLLEGE	CLAREMORE, OKLAHOMA 74017
HARDIE, HUGH (AGRICULTURE)	CROWDER COLLEGE	NEOSHO, MO. 64850
HARRINGTON, ROBERT (DEAN)	CENTRAL NEBR. TECH COLLEGE	HASTINGS, NEBRASKA 68901
HAUN, ROLLAND C. (SOC. SCI.)	FLORISSANT COLLEGE	ST. LOUIS, MO. 63135
HEIDBRINK, DOROTHY (MATH)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
HEIDER, RUDOLPH (CHEMISTRY)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
HILTON, JOHN A.	MINERAL AREA COLLEGE	FLAT RIVER, MO. 63601
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MANGAN, FRANCIS (MATH)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
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WALKER, RUSSELL (SOC.SCI)	CROWDER COLLEGE	NEOSHO, MO. 64850
WALKER, WILSON	RICKS COLLEGE	REXBURG, IDAHO 83440
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WATKINS, JOHN H. (MATH)	MINERAL AREA COLLEGE	FARMINGTON, MO. 63601
WEEDON, ROSETTA (DEAN)	STATE COMM. COLLEGE	E. ST. LOUIS, ILL.
WHEELER, JAMES (PSYCH.)	MERAMEC COLLEGE	KIRKWOOD, MO. 63122
WIEGERT, ROY (LEARN CTR)	IOWA LAKES COMM. COLLEGE	ESTHERVILLE, IOWA 51334
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WIRTH, MARION P. (DEAN)	CONNORS STATE COLLEGE	WARNER, OKLAHOMA 74469
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